

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 July 2005 (21.07.2005)

PCT

(10) International Publication Number  
**WO 2005/066189 A1**

(51) International Patent Classification<sup>7</sup>: **C07F 9/44**,  
A61K 31/66, A61P 31/00

[US/US]; 770 Crane Avenue, Foster City, CA 94404 (US). **YANG, Zheng-Yu** [CN/US]; 888 Foster City Blvd., Apt.D5, Foster City, CA 94404 (US).

(21) International Application Number:  
PCT/US2004/043969

(74) Agents: **WONG, James, J.** et al.; Gilead Sciences, Inc., 333 Lakeside Drive, Foster City, CA 94404 (US).

(22) International Filing Date:  
29 December 2004 (29.12.2004)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/533,745 30 December 2003 (30.12.2003) US  
60/590,987 26 July 2004 (26.07.2004) US  
60/606,595 1 September 2004 (01.09.2004) US

(71) Applicant (*for all designated States except US*): **GILEAD SCIENCES, INC.** [US/US]; 333 Lakeside Drive, Foster City, CA 94404 (US).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

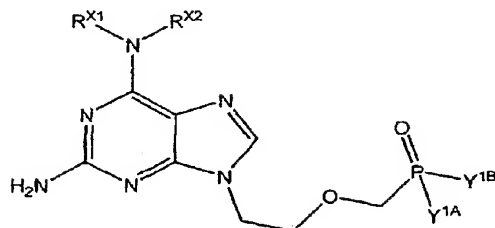
(75) Inventors/Applicants (*for US only*): **CHENG, Xiaqin** [US/US]; 4497 Castle Lane, Broomfield, CO 80020 (US). **COOK, Gary, P.** [US/US]; 1426 South Bowen Street, Longmont, CO 80501 (US). **DESAI, Manoj, C.** [US/US]; 1975 Mohawk Drive, Pleasant Hill, CA 94523 (US). **DOERFFLER, Edward** [US/US]; 1600 East 3rd Avenue, No.2508, San Mateo, CA 94401 (US). **HE, Gong-Xin** [CN/US]; 5436 Ontario Common, Fremont, CA 94555 (US). **KIM, Choung, U.** [US/US]; 1750 Elizabeth Street, San Carlos, CA 94070 (US). **LEE, William, A.** [US/US]; 749 Anderson Drive, Los Altos, CA 94024 (US). **ROHLOFF, John, C.** [US/US]; 605 Meadowbrook Drive, Boulder, CO 80303-3536 (US). **WANG, Jianying**

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: PHOSPHONATES, MONOPHOSPHONAMIDATES, BISPHOSPHONAMIDATES FOR THE TREATMENT OF VIRAL DISEASES



(I)

(57) Abstract: Compounds and compositions of Formula (I) are described, useful as anti-proliferative agents, and in particular anti-HPV.



WO 2005/066189 A1